SPECIFICATION

Support for the new paragraphs is contained in the specification as submitted. No new material has been added. New paragraphs [0032] and [0033] are fully supported by the specification, and particularly paragraphs 22 through 31.

Please amend the specification as follows:

Delete paragraph [0015] and please enter new paragraph [0015]:

[0015] The present invention and its advantages will be better understood by referring to the following detailed description and the attached drawings in which:

FIG. 1 illustrates an earth model of observed values to map to the ideal case;

FIG. 2 illustrates an earth model of ideal values mapped from the observed case;

FIG. 3 illustrates the angle dependence for the corrections;

FIG. 4 illustrates a comparison of the ideal case, prior art and preferred embodiments of the present invention;

FIG. 5 illustrates a processing flowchart of the present invention; and

FIG. 6 illustrates another processing flowchart of the present invention.

Please delete paragraph [0032] and please enter new paragraphs [0032], [0033] and [0034] below:

[0032] Figure 5 illustrates a flow chart of the present invention. A target water bottom time T_w and a time shift are determined at various points in the dataset **101**. A vertical static correction, Δt, may be defined that is the difference between an observed time to a water bottom and an ideal time to a water bottom determined using a selected ideal

velocity. For each sail line target water bottom time T_w and time shift Δt, may be obtained. The time shift, Δt, and target water bottom, T_w, are combined to derive V_{obs} relative to the ideal velocity V_w **102**. V_{obs} may then be constrained to be some percentage of the ideal velocity. V_{obs} may then be smoothed and interpolated. Alternatively, if Δt measurements are not used, the equivalent V_{obs} may be supplied from other forms of analysis. A vertical time correction $\Delta t(\theta) = \Delta t(\theta = 0)/\cos\theta$, is then determined **103** using V_{obs}. This vertical time correction may be angle dependent, for example using equation 12 above. In a preferred embodiment of the present invention, the vertical time correction is applied before the NMO correction **104**.

[0033] Figure 6 illustrates an alternate embodiment of the invention. A zero-offset static correction, Δt, is determined **201**. A vertical static correction, Δt, may be defined that is the difference between an observed time to a water bottom and an ideal time to a water bottom determined using a selected ideal velocity. An ideal water velocity V_w is selected **202**. A zero-offset water bottom time is selected **203**. The zero-offset water bottom times are available, or equivalently, the water velocities are assumed known. The timing errors and water velocities are related by equation 5 above. At **204**, an observed velocity V_{obs} is determined. Using this information, a water velocity dynamic correction is determined **205**, and may be applied to the seismic data prior to NMO **206**.

[0034] Persons skilled in the art will understand that the method described herein may be practiced as disclosed, including but not limited to the embodiments described. Further, it

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should be understood that the invention is not to be unduly limited to the foregoing which has been set forth for illustrative purposes. Various modifications and alternatives will be apparent to those skilled in the art without departing from the true scope of the invention, as defined in the following claims.